

Amendments to the Claims:

1. (Currently Amended) A mechanical pipe joint for sealing and restraining adjoining fluid piping members along an axis, said joint comprising:
  - a male piping member defining an outer surface;
  - a female piping member comprising a bell socket for receiving the male piping member, the bell socket defining an inner surface having a circumference larger than the outer surface of the male piping member so as to define a sealing cavity therebetween;
  - a gland extending at least partially around the male piping member and being configured for axially directed attachment to axial engagement with the bell socket, the gland defining at least one bearing surface that is forced axially as the gland is attached to axially engaged with the bell socket; and
  - a restraining gasket for sealing and restraining the male piping member relative to the female piping member, the restraining gasket being formed at least in part of an elastomeric material and comprising:
    - a sealing portion that fits substantially within the sealing cavity and provides a fluid seal between the inner surface of the bell socket and the outer surface of the male piping member; and
    - a restraining portion that surrounds the outer surface of the male piping member substantially outside of the sealing cavity and comprises a plurality of circumferentially-spaced arcuate locking members formed from a rigid material and arranged for restraining engagement configured to be operably engaged between the bearing surface of the gland and the outer surface of the male piping member as the gland is axially attached to the bell socket so as to restrain the male piping member within the bell socket, wherein the locking members are retained relative to each other by the elastomeric material before the attachment of the gland to the bell socket.

2. (Currently Amended) The mechanical pipe joint according to Claim 1, wherein the elastomeric material comprises the sealing portion, and wherein a plurality of spacers separate from and are adhesively attached to the sealing portion, and wherein the

circumferentially-spaced arcuate locking members are retained relative to each other by the plurality of spacers.

3. (Currently Amended) The mechanical pipe joint according to Claim 2, wherein the plurality of spacers are composed of ~~an~~ a second elastomeric material having a different stiffness than the stiffness of the elastomeric material of the sealing portion.

4. (Currently Amended) The mechanical pipe joint according to Claim 2, wherein each spacer is located circumferentially between two of the circumferentially-spaced arcuate locking members such that the plurality of circumferentially-spaced arcuate locking members are ~~initially~~ suspended out of contact with the outer surface of the male piping member at a distance of about 0.100 inches from the outer surface of the male piping member before the attachment of the gland to the bell socket.

5. (Currently Amended) The mechanical pipe joint according to Claim 1, wherein the plurality of circumferentially-spaced arcuate locking members are configured to restrain the outer surface of the male piping member with a means for gripping the outer surface of the male piping member, the gripping means selected from the group consisting of:

- a plurality of teeth;
- an abrasive grit;
- a ~~hard~~ granular material; [[or]] and
- a plurality of radial ridges.

6. (Currently Amended) The mechanical pipe joint according to Claim 1, further comprising an interface between the sealing portion and the restraining portion, the interface ~~further~~ defining a slope, the slope being configured to convert an axial force of the at least one bearing surface of the gland into a partially-axial force and a partially-radial force on the restraining gasket.

7. (Currently Amended) The mechanical pipe joint according to Claim 6, wherein the slope is directed radially outward towards the bell socket at an angle of approximately 10 to 20 degrees[[],] with respect to a plane that is perpendicular to the axis, such that the partially-axial force is exerted first on the sealing portion, and the partially-radial force is exerted second on the plurality of circumferentially-spaced arcuate locking members so that the axial force of the at least one bearing surface of the gland seals the sealing cavity about the male piping member before urging the plurality of circumferentially-spaced arcuate locking members into engagement with the outer surface of the male piping member so as to axially secure the male piping member within the bell socket.

8. (Original) The mechanical pipe joint according to Claim 7, wherein the slope is directed radially outward towards the bell socket at an angle of approximately 15 degrees, with respect to a plane that is perpendicular to the axis.

9. (Currently Amended) The mechanical pipe joint according to Claim 1, wherein an arc length of each of the plurality of circumferentially-spaced arcuate locking members is at least 15 degrees[[],] with respect to the axis.

10. (Currently Amended) The mechanical pipe joint according to Claim 1, wherein an arc length of each of the plurality of circumferentially-spaced arcuate locking members is about 60 degrees[[],] with respect to the axis.

11. (Currently Amended) The mechanical pipe joint according to Claim 1, wherein the bell socket is made of ductile iron, and wherein the male piping member is made of PVCpolyvinyl chloride.

12. (Currently Amended) The mechanical pipe joint according to Claim 11, wherein the rigid material is selected from the group consisting of:

mild steel;

ductile iron;  
ceramic; ~~[[or]] and~~  
plastic having a hardness greater than that of ~~the PVC~~polyvinyl chloride of the  
male piping member.

13. (Original) The mechanical pipe joint according to Claim 1, wherein the bell socket and the male piping member are made of ductile iron.

14. (Currently Amended) The mechanical pipe joint according to Claim 1, further comprising a flange ~~axially attached to~~ operably engaged with the bell socket, the flange extending radially outward from the bell socket and wherein the flange further defines a first plurality of apertures extending through the flange parallel to the axis, and wherein the gland further defines a second plurality of apertures configured to correspond axially with the first plurality of apertures and to accept a plurality of threaded connectors configured to axially attach the gland to the bell socket.

15. – 25. (Cancelled)

26. (Currently Amended) A method of sealing and axially securing a male piping member within an adjoining bell socket along an axis, the bell socket defining a sealing cavity between an inner surface of the bell socket and an outer surface of the male piping member, the method comprising;

providing a restraining gasket adapted to surround the male piping member, the restraining gasket being formed at least in part of an elastomeric material and having a sealing portion and a restraining portion, the restraining portion comprising a plurality of circumferentially-spaced arcuate locking members formed from a rigid material and wherein the locking members are retained relative to each other by the elastomeric material;

surrounding the male piping member with the restraining gasket;

inserting the male piping member into the bell socket such that the restraining portion of the restraining gasket surrounds the outer surface of the male piping member substantially outside of the sealing cavity, and such that the sealing portion of the restraining gasket is positioned about the male piping member substantially within the sealing cavity so that a fluid seal is formed between the inner surface of the bell socket and the outer surface of the male piping member; and

attaching a gland to the bell socket, the gland extending at least partially around the male piping member and the gland defining at least one bearing surface, ~~to the bell socket~~ such that the at least one bearing surface produces an ~~axial~~ attachment force directed substantially parallel to the axis, on the plurality of circumferentially-spaced arcuate locking members so that the locking members are urged into engagement with the male piping member so as to axially secure the male piping member within the bell socket.

27. (Currently Amended) A method according to Claim 26, wherein the providing step further comprises providing a plurality of elastomeric material components, the elastomeric material components comprising the sealing portion, and a plurality of spacers, ~~separate from and~~ adhesively attached to the sealing portion, the plurality of spacers being configured to retain the plurality of circumferentially-spaced arcuate locking members relative to each other.

28. (Currently Amended) A method according to Claim 27, wherein the providing step further comprises providing the plurality of spacers composed of ~~an~~ a second elastomeric material having a different stiffness than the stiffness of the elastomeric material of the sealing portion.

29. (Currently Amended) A method according to Claim 27, further comprising a suspending step, occurring before the attaching step, the suspending step comprising locating the spacers circumferentially between two of the circumferentially-spaced arcuate locking members such that the plurality of circumferentially-spaced arcuate locking members are initially suspended out of contact with the outer surface of the male piping member at a distance of about

0.100 inches from the outer surface of the male piping member before the attachment of the gland to the bell socket.

30. (Currently Amended) A method according to Claim 26, wherein the providing step further comprises providing a surface located on the radially inner surface of each arcuate locking segmentmember, the surface selected from the group consisting of:

- a plurality of teeth;
- an abrasive grit;
- a ~~hard~~ granular material; [[or]]and
- a plurality of radial ridges

31. (Currently Amended) A method according to Claim 26 wherein the providing step further comprises providing an interface between the sealing portion and the restraining portion, the interface ~~further~~ defining a slope, the slope being configured to convert the ~~axial~~ attachment force of the at least one bearing surface of the gland into a partially-axial force and a partially-radial force on the gasket.

32. (Currently Amended) A method according to Claim 31, wherein the providing step further comprises adjusting the slope to be directed radially outward towards the bell socket, such that the partially-axial force is exerted first on the sealing portion, and the partially radial force is exerted second on the plurality of circumferentially-spaced arcuate locking members so that the ~~axial~~ attachment force of the at least one bearing surface of the gland seals the sealing cavity about the male piping member before urging the plurality of circumferentially-spaced arcuate locking members into engagement with the outer surface of the male piping member so as to axially secure the male piping member within the bell socket.

32.33. (Currently Amended) A method according to Claim 26, wherein the providing step further comprises providing one or more of the plurality of circumferentially-spaced arcuate

locking members ~~wherein with~~ an arc length of ~~each of the plurality of circumferentially-spaced arcuate locking members~~ is at least 15 degrees[[],] with respect to the axis.

33.34. (Currently Amended) A method according to Claim 26, wherein the providing step further comprises providing one or more of the plurality of circumferentially-spaced arcuate locking members ~~wherein with~~ an arc length of ~~each of the plurality of circumferentially-spaced arcuate locking members~~ is about 60 degrees[[],] with respect to the axis.

34.35. (Currently Amended) A method according to Claim 26, wherein the providing step further comprises providing the rigid material ~~wherein the rigid material is selected~~ from the group consisting of:

- hardened metal;
- mild steel;
- ductile iron;
- ceramic; [[or]]and
- plastic having a hardness greater than that of any PVCpolyvinyl chloride.

35.36. (Currently Amended) A method according to Claim 26, wherein the attaching step further comprises attaching the gland to the bell socket using a plurality of threaded connectors such that the at least one bearing surface of the gland is gradually brought into contact with the plurality of circumferentially-spaced arcuate locking members.

36. – 44. (Cancelled)